

CLAIM AMENDMENTS

1. (Currently Amended) A semiconductor laser device comprising:
an InP substrate of a first conductivity type;
a first cladding layer of the first conductivity type disposed on the InP substrate;
an active layer including a multiple quantum well structure disposed on the first cladding layer and having uniformly flat upper and lower boundary surfaces in an optical waveguide direction;
a second cladding layer of a second conductivity type disposed on the active layer;
~~and~~
a diffraction grating layer having a ~~phase-shifted~~phase-shifting structure in the optical waveguide direction, between the active layer and one of the first and second cladding layers, wherein
the diffraction grating layer has a length L in the optical waveguide direction greater than zero but not exceeding 260 μm ;
mean coupling factor κ of the diffraction grating layer is at least 150 cm^{-1} ; and
 $5.6 > \kappa L > 3.0$; and
power supply electrodes opposite each other, wherein the phase-shifting structure is interposed between the power supply electrodes.
2. (Currently Amended) The semiconductor laser device according to claim 1, wherein power threshold gain ~~α_{th}~~ per unit length in a principal axial mode, α_{th} , satisfies $7\text{ cm}^{-1} \leq \alpha_{th} \leq 51\text{ cm}^{-1}$.
3. (Previously Presented) The semiconductor laser device according to claim 1, further comprising a heavily-doped p-type region having a carrier concentration of 10^{18} cm^{-3} in at least a portion of a p-type layer proximate at least a portion of the active layer.
4. (Previously Presented) The semiconductor laser device according to claim 2, further comprising a heavily-doped p-type region having a carrier concentration of 10^{18} cm^{-3} in at least a portion of a p-type layer proximate at least a portion of the active layer.
5. (Previously Presented) The semiconductor laser device according to claim 1, wherein
 $\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100$,

where a composition wavelength of the diffraction grating layer is λ_g (nm) and an oscillation wavelength is λ_p (nm).

6. (Previously Presented) The semiconductor laser device according to claim 2, wherein

$$\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100,$$

where a composition wavelength of the diffraction grating layer is λ_g (nm) and an oscillation wavelength is λ_p (nm).

7. (Previously Presented) The semiconductor laser device according to claim 3, wherein

$$\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100,$$

where a composition wavelength of the diffraction grating layer is λ_g (nm) and an oscillation wavelength is λ_p (nm).

8. (Previously Presented) The semiconductor laser device according to claim 4, wherein

$$\lambda_p - 100 \leq \lambda_g \leq \lambda_p + 100,$$

where a composition wavelength of the diffraction grating layer is λ_g (nm) and an oscillation wavelength is λ_p (nm).

9. (Previously Presented) The semiconductor laser device according to claim 1, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

10. (Previously Presented) The semiconductor laser device according to claim 2, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

11. (Previously Presented) The semiconductor laser device according to claim 3, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

12. (Previously Presented) The semiconductor laser device according to claim 4, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

13. (Previously Presented) The semiconductor laser device according to claim 5, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

14. (Previously Presented) The semiconductor laser device according to claim 6, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

15. (Previously Presented) The semiconductor laser device according to claim 7, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.

16. (Previously Presented) The semiconductor laser device according to claim 8, wherein a highly-refractive portion of the diffraction grating layer has a length longer than that of a low-refractive portion of the diffraction grating layer in the optical waveguide direction.